(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number
WO 2004/028318 A1

(51) International Patent Classification[7]: A47J 31/40, 31/44

(21) International Application Number: PCT/IB2003/004085

(22) International Filing Date: 17 September 2003 (17.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02079000.2 27 September 2002 (27.09.2002) EP

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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

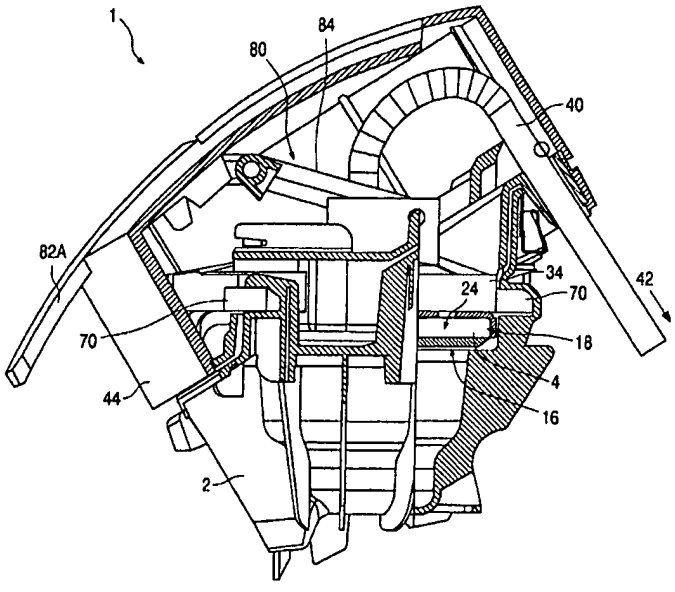
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,*

[Continued on next page]

(54) Title: APPARATUS FOR PREPARING COFFEE



(57) Abstract: An apparatus for preparing coffee includes a holder (4) provided with an access opening (24) for placing a pouch filled with a product to be extracted into the holder (4); a cover (34) for closing and releasing the access opening (24); clamping means (70) for pressing the holder (4) and cover (34) towards each other when the cover (34) closes off the access opening (24) of the holder (4); and closing means (80) for retaining the cover (34) and the clamping means (70) in position when the cover (34) closes off the access opening (24) of the holder (4). The closing means (80) are mechanically coupled to the clamping means (70) for bringing the clamping means (70) from a non-clamping condition into a clamping condition by manually operating the closing means (80) from a first defined position to a second defined position.

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Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Apparatus for preparing coffee

The invention relates to an apparatus for preparing coffee, comprising a holder provided with an access opening for placing a product to be extracted into said holder; a cover for closing and releasing the access opening; clamping means for pressing the holder and cover towards each other when the cover closes off the access opening of the holder and closing means for retaining the cover and the clamping means in position when the cover closes off the access opening of the holder.

Such an apparatus is known from EP 0 904 718. In this known apparatus the holder is mounted in a first housing part and the cover is spring adjustably mounted in a second housing part. To close the apparatus, the second housing part is pivoted towards the first housing part, whereupon the spring will adjust the orientation of the cover so that it can properly engage the holder. Due to this adjustment, clamping means at the inner side of the second housing part engage clamping means at the outer side of the cover, thus establishing a clamping force which presses the cover onto the holder. Subsequently, a clip on the second housing part can be hooked behind a protrusion of the first housing part, to retain the cover and clamping means in the closed position.

A disadvantage of this known apparatus is that the spring and clamping means allow the cover to become misaligned during closure, without a user noticing. The misalignment can for instance be prompted due to a pouch or other filter structure or coffee granulate being misplaced and getting caught between the edges of the cover and the holder or due to too many pouches having been placed in the holder. Due to such misalignment no proper seal will be attained between the holder and cover and consequently, in use, the pressure in the holder will be too low, affecting the quality of the brew.

It is an object of the invention to provide an apparatus of the above-described type, wherein the risk of operation with the cover not properly aligned is reduced.

To that end, in an apparatus according to the invention the closing means are mechanically coupled to the clamping means for bringing the clamping means from a non-clamping condition into a clamping condition by manually operating the closing means from a first defined position to a second defined position. Such a configuration offers the advantage that a user obtains immediate tactile and visual feedback regarding the state of the clamping means, and hence the state of the cover, from operating the closing means. If, for instance, a force for operating the closing means is considerably lower or higher than usual, this will signal the user that the cover is positioned incorrectly, or at least that something is not working properly. The user may then take appropriate action to remedy the cause. Furthermore, as long as the closing means have not reached one of their two defined end positions, the user is informed that the clamping means have not reached their end position either and the cover is not, or not yet, properly engaged.

The clamping means can for instance comprise one or more cams and mating recesses, which can be brought into and out of engagement with each other by operating the closing means. Preferably the configuration of the cams and recesses is such that they can only be engaged when the cover is properly closing off the holder. Thus, if for whatever reason the cover is not properly aligned, the closing means will not be operable to the closed end position, thereby sending a clear message to the user, both tactile and visual, that something is the matter.

Preferably the cams are at least partly wedge-shaped. This offers the advantage that the clamping force can be gradually built up, while advancing the cams in the recesses, thus facilitating the operation of the closing means.

According to an advantageous embodiment of an apparatus according to the invention, part of the clamping means is statically mounted in a first housing part to which the holder is connected, whereas the mating clamping means are movably mounted in a second housing part to which the cover is connected. Preferably, said movable clamping means are mounted on a single slider, which slider is movably connected to the second housing part. In that way, by displacing, e.g. rotating and/or translating the slider, all movable clamping means can be simultaneously brought into engagement with the static clamping means. Since only a single slider will have to be operated, the closing means can be of a simple, robust construction and will be easy to operate. Furthermore, the construction will have a high sensitivity to detecting misalignment of the cover, for if only one pair of co-operating clamping means cannot be properly engaged, the complete slider will not attain its

engaged position, which again will be communicated to the user by the position of the closing means.

The cover can either be connected to the slider and, together with the slider and the clamping means, be slid into the closing position, or it can be connected to the second housing part, separately from the slider. In the latter case, the cover can be clamped onto the holder by means of the slider pressing directly onto the cover, or indirectly, by means of the second housing part, which itself is being clamped onto the first housing part.

In a further advantageous embodiment, the clamping means are spaced evenly along the access opening of the holder, at least in the clamped condition. As a result, the clamping force will be evenly distributed over the cover, in particularly around its periphery, resulting in a good, reliable seal. The clamping means can for instance be arranged around the access opening in a triangle, preferably an equilateral triangle. If so, the widest part of the triangle, that is the base thereof, preferably faces a front side of the apparatus so that the accessibility of the holder is not hampered.

According to yet a further preferred embodiment, the closing means for operating the clamping means include a toggle joint lever. By applying such a toggle joint lever the force needed for operating the slider and bringing the clamping means into engagement can be kept relatively low. Although the operating force will be low, this will still contain sufficient information regarding the state of the clamping means and cover. Hence, ease of operation can be increased, without compromising the feedback function of the closing means.

In a highly preferred embodiment, the closing means furthermore comprise a spring, which helps return the closing means to either one of its two defined end positions, thereby communicating to the user whether the closure of the holder has been successful or not. Preferably, the design of the toggle joint lever and spring action is chosen such that the movement of the closing means between said two defined positions corresponds to a natural sense for opening and closing the apparatus.

The above and other advantageous embodiments of the invention are set forth in the dependent claims.

To explain the invention, exemplary embodiments thereof will hereinafter be described with reference to the accompanying drawings, wherein: